

REMARKS

In the International phase of this PCT application amended sheets regarding the claims have been filed. The amendments in the International phase are hereby incorporated by reference in their entirety in the present Preliminary Amendment and also filed on separate sheets herewith as originally filed and along with the Specification.

Thus, claims 1-22 are presented for examination. Applicant respectfully requests allowance of the present application in view of the foregoing amendments.


The amendments are not made for purposes of patentability.

Conclusion

The commissioner is hereby authorized to charge any appropriate fees due in connection with this paper, including the fees specified in 37 C.F.R. §§ 1.16 (c), 1.17(a)(1) and 1.20(d), or credit any overpayments to Deposit Account No. 19-2179.

Respectfully submitted,

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1. A seal element (1) for sealing a gap (5) between a first component (2) and a second component (3) spaced apart from each other, said first component (2) having a first surface (9) and said second component (3) having an opposing second surfaces (10), said seal element (1) comprising:
- a) a support structure (4),
  - b) a sealing structure (6) covering at least partially said support structure (4), wherein said support structure (4) comprises at least two contacting members (8), each contacting member (8) serves for putting a portion of the sealing structure (6) in contact with one of the surfaces (9,10) and being capable of following a deformation and/or movement of said surface (9,10), characterised in that, that said support structure (4) has a frame portion (7) to which said contacting members (8) is connected via a branch portion (21) extending away from said frame portion (7).
2. Seal element (1) according to claim 1, wherein said sealing structure (6) comprises a web having metallic and/or ceramic fibres.
3. Seal element (1) according to claim 2, wherein said sealing structure (6) comprises a ceramic fibre fabric, a ceramic fibre tape, a ceramic fibre sleeving or a ceramic fibre mat.
4. Seal element (1) according to claims 2 or 3, wherein said sealing structure (G) comprises ceramic fibres consisting of ZrO<sub>2</sub>, SiO<sub>2</sub> and/or Al<sub>2</sub>O<sub>3</sub>.
5. Seal element (1) according to claim 2, wherein said sealing structure (6) comprises a metallic fibre fabric, a metallic fibre tape, a metallic fibre sleeving or a metallic fibre mat.

6. Seal element (1) according to any of the preceding claims,  
wherein said sealing structure (6) comprises metallic fibres  
consisting of a superalloy, in particular a nickel-based, a  
5 cobalt-based or ironbased superalloy.

7. Seal element (1) according to anyone of the preceding  
claims, wherein said sealing structure (6) is loosely  
connected to said support structure (4).  
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8. Seal element (1) according to anyone of the preceding  
claims, wherein said support structure (4) consists of a  
metal, in particular a sheet metal.

9. Seal element (1) according to anyone of the preceding  
claims, wherein said support structure (4) has a curved form,  
in particular is U-shaped, open-ring shaped or ring-shaped.  
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10. Seal element (1) according to anyone of the preceding  
claims, wherein said branch portion (21) and said contacting  
member (8) are elastically deformable.  
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11. Seal element (1) according to anyone of the preceding  
claims, wherein said support structure (4) has at least two  
25 branch portions (21) with different length.

12. Seal element (1) according to anyone of the preceding  
claims, wherein said branch portions (21) form together with  
a middle portion (36) a two-arm spring (34), which spring  
30 (34) is fastened to said frame portion (7) at said middle  
portion (36).

13. Seal element (1) according to anyone of the preceding  
claims, further comprising a tightening member (20) for  
35 tightening said sealing structure (6) between two adjacent  
contacting members (8).

14. Seal element (1) according to claim 13 wherein said tightening member (20) comprises a spring member, in particular a spring ring.

5 15. Seal element (1) according to anyone of the preceding claims in a hot gas chamber (23) having a hot-gas flow region (11), said hot gas chamber (23) having - a wall structure (13) surrounding said hot-gas flow region (11) and comprising said second component (3) having said second surface (10), -  
10 said first component (2) being attached to said wall structure (13) and having said First surface (10), which is directed to the wall structure (13), wherein said gap (5) is formed between said first component (3) and said second component (3), said sealing structure (6) being in contact  
15 with said second surfaces (10) of said second component (3) and with said first surface (9) of said first component (2) thereby sealing said gap (S).

16. Seal element (1) according to claim 15, wherein said hot  
20 gas chamber (23) is a part of a combustion turbine (22), in particular is a combustion chamber or a turbine section.

17. Seal element (1) according to claims 15 or 16, wherein  
25 said first component (2) is a heat shield element of a combustion chamber or a shroud element of a turbine section.

18. Seal element (1) according to anyone of the claims 1 to 14 in a combustion turbine (22) comprising a burner (41), a turbine section (17) having a turbine inlet (44) for hot gas  
30 (24) to enter said turbine section (17), a duct (43) connecting said burner (41) to said turbine section (17) for hot gas (24) to flow from said burner (41) to said turbine section (17), whereby said first surface (9) is formed by said turbine inlet (44) and said second surface (10) by said  
35 duct (43) in the vicinity of said turbine inlet (44), with said gap (5) between said first surface (9) and said second surface (10) sealed by said seal element (1).

19. A combustion turbine (22), comprising:
- a hot gas chamber (23) having a hot-gas flow region (11),
  - a wall structure (13) surrounding said hot-gas flow region
  - 5 (11) and comprising at least one second component (3) having a second surface (10) directed to said hot-gas flow region (11),
  - at least one first component (2) being attached to said wall structure (13) and having a first surface (9), which is
  - 10 directed to the wall structure (13),
  - a gap (5) formed between said first component (2) and said second component (3)
  - a seal element (1) for sealing said gap (5) said seal element (1) comprising:
  - 15 a) a support structure (4),
  - b) a sealing structure (6) covering at least partially said support structure (4), wherein said support structure (4) comprises at least two contacting members (8), each
  - 20 contacting member (8) puts a portion of said sealing structure (6) in contact with one of the surfaces (9,10) and being capable of following a deformation of said surface (9,10),
  - characterised in that,
  - that said support structure (4) has a frame portion (7) to
  - 25 which said contacting members (8) is connected via a branch portion (21) extending away from said frame portion (7).
20. Combustion turbine (22) comprising a burner (41), a turbine section (17) having a turbine inlet (44) for hot gas (24) to enter said turbine section (17), a duct (43)
- 30 connecting said burner (41) to said turbine section (17) for hot gas (24) to flow from said burner (41) to said turbine section (17), whereby a first surface (9) is formed by said turbine inlet (44) and a second surface (10) by said duct (43) in the vicinity of said turbine inlet (44), so that a
- 35 gap (5) is formed between said first surface (9) and said second surface (10),
- which gap (5) is sealed by a seal element (1),

said seal element (1) comprises:

a) a support structure (4),

b) a sealing structure (6) covering at least partially said support structure (4), wherein said support structure (4)

5 comprises at least two contacting members (8), each contacting member (8) puts a portion of said sealing structure (6) in contact with one of the surfaces (9,10) and being capable of following a deformation of said surface (9,10),

10 characterised in that,

that said support structure (4) has a frame portion (7) to which said contacting members (8) is connected via a branch portion (21) extending away from said frame portion (7).

15 21. Combustion turbine (22) according to claims 19 or 20, wherein said seal element (1) comprises a curved frame portion (7) from which said contacting members (8) are spaced apart and each contacting member (8) being connected to said frame portion (7) via a branch portion (21).

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22. Combustion turbine (22) according to anyone of the claims 19 to 21, wherein said seal element (1) is surrounded by said sealing structure (6) being a sleeving.